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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,683	09/15/2003	Melvin E. Wolfe JR.	28076/SV1094	9788

4743 7590 03/18/2008

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ART UNIT	**PAPER NUMBER**
3729	

MAIL DATE	DELIVERY MODE
03/18/2008	PAPER

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/662,683
Filing Date: September 15, 2003
Appellant(s): WOLFE ET AL.

Wolfe et al
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/12/07 appealing from the Office action mailed 6/08/07.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,737,770	Sunaga et al	05-2004
5,880,666	Matsuoka et al	03-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The following grounds of rejection are applicable to the appealed claims and are expressly stated in the Final Rejection and First Office Action (filed on January 09, 2007 and July 24, 2006). No new grounds of rejection are being presented and the following grounds of rejection are hereby repeated below for the convenience of the Appellants and the BPAI:

Claim Rejections - 35 USC § 103

A) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

B) Claims 11-13 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sunaga et al (US 6,737,770 B2) in view of Matsuoka et al (US 5,880,666) or vice versa.

With regard to claim 11, Sunaga et al teach a process of making brushless motor, comprising:

- winding a first magnet wire of a coil (Fig. 1, 7) connecting to a first lug or terminal (Fig. 1, 48, col. 4, lines 57-59) in a winding board (Fig. 1, 40) and a first protrusion (Fig. 1, 5) in a stator (Fig. 1, 2), the winding board (Fig. 1, 40) being disposed on the stator (Fig. 1, 2) and including a switch (Fig. 1, 41) having at least an internal terminal, and a fuse (Fig. 7A, 60) having an input terminal and an exit terminal;
- electrically connecting an end portion of the first magnet wire to the switch (Fig. 1, 41; col. 4, lines 26 & 27) for changing the current direction to the coils; except for having the end portion of the first magnet wire directly connected to the switch.

Matsuoka et al teach a process of mounting a fuse with press-connecting terminals and wire cutter at any intermediate portion of the circuit (Col. 1, line 41) and providing a fuse that can be to easily mounted it at an existing circuit (Col. 1, lines 52-55), comprising:

- laying a first wire (Fig. 3, 16) connection to an exit terminal and an input terminal (Fig. 3, 4 & 50 on a fuse (Fig. 3, 10);
- severing the first wire (Fig. 4, 16) between the input terminal and the exit terminal on the fuse.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Sunaga et al by applying the simple process of making a fuse, as taught by Matsuoka et al, in order to easily mount a fuse at an existing circuit and speed up the fuse making process, and it would have been also an obvious matter of design choice to a person of ordinary skill in the art to have the direct connection between end portion of the first magnet wire and the switch because applicants have not disclose that having only the direct connection between end portion of the first magnet wire and the switch provides an advantage, is used for a

particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicants' invention to perform equally well with any intermediate, electrical connection element such as track, lug or terminal located between the first magnet wire and the switch because that element can be electrically conductive as well and electrically-wise there is no difference between direct and nondirect contacts (due to an intermediate conductive element; Sunaga et al, fig. 1, terminal 48 & circuit board track 40) between these two devices (Sunaga et al, fig. 1, 7 & 41) as the electrons movement, voltage or current between these two devices are absolutely unaffected by the intermediate element.

With regard to claim 12, Sunaga et al and Matsuoka et al teach a process of connecting wire to fuse including the well known clipping of a fuse to a board (Col. 1, lines 16-18) by Sunaga et al, which reads on applicants' claimed invention; except for clipping the magnet wire.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to further apply a clipping step to any loose wire for better connection and handling.

With regard to claims 13 and 18, Sunaga et al teach several switches (Figs. 1 & 6, 41) mounted on the printed wiring board (Fig. 1, 40) for changing directions of the drive current applied to the exciting coil or magnetic wire coil (Fig. 1, 7, col. 4, lines 26-29); except for terminating a magnet wire to the switch.

It would be obvious to one of ordinary skill in the art at the time the invention was made to have a switch (Fig. 8A, 41; col. 4, lines 25-28) that changes current drive directions, even for single pole switch, which must have internal and external terminals with several blocks or connecting pads/posts, connecting to the magnet wire coil.

With regard to claim 16, Sunaga et al teach the winding the first magnet wire of the coil (Fig. 1, left 7) about the first lug or terminal (Fig. 1, 41; col. 4, lines 57-59) in the winding board and the first protrusion or core (Fig. 1, left 5) in the stator (Fig. 1, 2) to form one of the two poles (Col. 3, lines 6-8).

With regard to claim 17, Sunaga et al teach the winding the second magnet wire of the coil (Fig. 1, right 7) about the second lug or terminal (Fig. 1, 41; col. 4, lines 57-59) in the winding board and the second protrusion or core (Fig. 1, right 5) in the stator (Fig. 1, 2) to form the other of the two poles (Col. 3, lines 6-8).

C) Claims 14, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sunaga et al in view of Matsuoka et al and further view of Lewchenko et al (US 6,058,595).

With regard to claims 14, 15 and 19, Sunaga et al and Matsuoka et al teach a process of connecting wire with fuse, including the electrical connection of the magnetic coil to the terminals (Sunaga et al; Col. 4, lines 57-59) and the connection by welding process (Sunaga et al; Abstract), which reads on applicants' claimed invention; except for having tang as terminal connection.

Lewchenko et al teach a method of manufacturing an armature with the hooks or tang terminals where the magnet wires are connected (Col. 1, lines 38-40), which is old art.

It would be obvious to one of ordinary skill in the art at the time the invention was made to combine the three teachings by applying the terminal tangs, as taught by Lewchenko et al, as connecting point to the magnet wire of the coil and soldering or welding it in order to establish a secured and good electrical connection.

(10) Response to Argument

A. Rejection of claims 11-13 and 16-18 (Pages 5-7):

Appellants admit that the issue may be a "close one" in whether it would have been obvious to incorporate the prior art Matsuoka et al (US 5,880,666), hereinafter '666, fuse into the prior art Sunaga et al (US 6,737,770), hereinafter '770, motor (Page 5 of the Brief).

Appellants assert that the '666 teaches a fuse to be attached to a wire while the '770 teaches a fuse at a specific location in a motor. Appellants argue that it would not be obvious to incorporate the secondary reference, the '666 patent, into the structure of the primary reference, the '770 patent, because of a need to add a conventional wire to attach to the fuse of a motor, which is a step backward because the '666 patent requires a new additional wire and new manufacturing steps to cut, to strip and to connect that the '666 patent tries to avoid (Pages 6 and 7 of the Brief).

In response to Appellants' arguments, **first**, an ordinary skill in the art such as a technician understands that the '666 teaches an improved, simple and small fuse installation at an existing circuit when new parts or new wire exceed current protection device (Figs 3 & 4, item 1; Col. 1, lines 33-38; lines 52-55); with the '770 when the technician needs extra protection for the winding coils (Fig. 1, item 7) and new switch (45) which are interconnected through the printed circuit board or PCB (40) and terminal (48) , the technician just needs to mount a small fuse on the printed circuit board (40) near the terminal (48), disconnects the excess magnetic wire of the winding coil (7) that is connected to the terminal and reconnects that magnetic wire directly across the fuse to a PCB solder spot then severing the wire across the fuse; and he(she) can

accomplish the claimed invention **without a need for extra wire**, as argued by Appellants. Therefore the combined references would have suggested the claimed invention to those of ordinary skill in the art.

Second, the examiner would like the Board of Appeals to refocus on the claimed invention (Claim 1) where there is no claimed limitation about the extra wire but the claimed invention is rather about the method claims where the critical steps of the invention are just the three main steps of: **a) laying** a wire across the fuse terminals, **b) connecting** the end-wire to a switch and **c) severing** the wire across fuse terminals (Claim 11, last 3 step limitations), while the wire type such as magnetic wire or the like and the winding of the wire in a motor (Claim 1, first 4 lines) or any electrical device are just obvious matter of design choice because one of ordinary skill in the art could very well apply these three main steps to work with a magnetic wire or copper or nickel one, etc... in a motor or heater, electrical system, etc... as well. The '666 patent alone teaches these three critical or main steps of the Appellant's claimed invention, and the '700 in view of the'666 teach and suggest at least all the limitations of Claim 11.

Third, in view of the recent Supreme Court's decision in the *KSR* case, 72 FR 57526. In the guidelines, seven possible rationales are laid out for an obviousness rejection: "(A) Combining prior art elements according to known methods to yield predictable results; (B) Simple substitution of one known element for another to obtain predictable results; (C) Use of known technique to improve similar devices (methods, or products) in the same way; (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (E) 'Obvious to try'--choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; (F) Known work in one field of

endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention." *Id.* at 57529. The rejection of claims 11-13 and 16-18 under 103(a) is applied while taking into account the above notation, especially with rationale G, which does not require the fulfillment of the "object" (Page 6, first 3 line of 1st paragraph; Page 7, last line of 2nd paragraph) of the reference as argued by the Appellants who insist that the fuse to be at a specific location only, as sole motivation. Thus, from the Appellant's sole motivation of adding a new wire to the '770 (Appellants' remarks; page 6), which is not applied in the rejection by the Examiner, it seems to be no obvious to combine the references; but from the motivation provided in the '666 patent to further protect new parts or circuitry implemented (Col. 1, lines 33-38; lines 52-55) and being properly applied in the rejection of Claim 11 by the Examiner (as presented in Section 9 above), one of ordinary skill in the art would combine the teachings of '666 and '770 to suggest at least the claimed invention (with respect to the motivation and obviousness in the KSR case).

B. Regarding Claims 14, 15 and 19 (Page 7, last paragraph):

Appellants fail to argue whether it is proper to reject under 103(a) over Sunaga et al in view of Matsuoka et al and further view of Lewchenko et al, i.e. however, it would be obvious to one of ordinary skill in the art at the time the invention was made to combine the three teachings by applying the terminal tangs, as taught by Lewchenko et al, as connecting point to

the magnet wire of the coil and soldering or welding it in order to establish a secured and good electrical connection. Therefore the rejection of Claims 14, 15 and 19 are maintained.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

T.P.

Tp
March 10, 2008

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